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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,099	08/02/2005	Kiyoshi Uchida	124895	9455
25944	7590	06/15/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			HITESHEW, FELISA CARLA	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/544,099

Applicant(s)

UCHIDA ET AL.

Examiner

Felisa C. Hiteshew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 8-20 is/are rejected.
- 7) ☒ Claim(s) 2-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date see attached sheet.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

The PTOL 1449 has been received, reviewed and considered.

***Claim Rejections - 35 USC § 101***

2. Claims 1,9,10,12 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,4,6,9 and 10 of copending Application No. 10/481,632. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach similar methods for producing a magnetic garnet single-crystal film.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 and 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1 403 403 A1 (EP '403 A1).

EP 1 403 403 A1 teaches magnetic garnet single crystal film formation substrate for growing a magnetic garnet single crystal film by liquid phase epitaxial growth, a base substrate composed of a garnet-based single crystal which is unstable with a flux used for the liquid phase epitaxial growth, and a buffer layer composed of a garnet-based single crystal thin film formed on the base substrate and being stable with the flux. The above flux is not particularly limited, but is a flux having, a lead oxide as a component. It is possible to select a garnet single crystal substrate of a specific composition having an extremely close thermal expansion coefficient to that of a magnetic garnet single crystal, i.e. bismuth-substituted rare earth iron garnet to be an object of forming by liquid phase epitaxy growth, even when the substrate is unstable (see column 9, lines 18-56). A faraday rotator and other optical elements can be formed by LPE growth at a high quality. A relatively thick (i.e. 200  $\mu\text{m}$  or more) and wide (a diameter of 3 inches or more) magnetic garnet single crystal film can be obtained by LPE. EP 1 403 403 A1 teaches a temperature range of  $0^{\circ}\text{C}$  to  $1000^{\circ}\text{C}$ , wherein the difference of the thermal expansion coefficient of the base substrate is within a range of  $\pm 2 \times 10^{-6}/^{\circ}\text{C}$  or less with respect to the thermal expansion coefficient of the magnetic garnet single crystal film. It

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is because, at the time forming a magnetic single crystal film by epitaxial growth, the temperature rises nearly 1000°C and returns to the room temperature, so cracks, etc easily arise on the epitaxial growth film when the thermal expansion coefficients are different. The difference of the lattice constant of the base substrate is in a range of  $\pm 0.02\text{\AA}$  or less with respect to the lattice constant of the magnetic garnet single crystal film. Preferably, the buffer layer is a garnet-based single crystal thin film substantially not including Nb and Ta. It is because a garnet-based single crystal thin film without Nb or Ta is relatively stable with a flux. Preferably, the buffer layer is expressed by a general formula  $R_3M_5O_{12}$  (note that R is at least one of rare earth elements and M is one selected from Ga and Fe) or an x-substituted gadolinium gallium garnet (note that X is at least one of Ca, Mg and Zr), A thickness of the buffer layer is 1 to 10000 nm, more preferably 5 to 50 nm, and a thickness of the base substrate 0.1 to 5 mm, more preferably 0.2 to 2.0 mm. When the thickness of the buffer layer is too thin, and effect of the present invention becomes small, while when it is too thick (see column 3, lines 1-58 and column 4, lines 1-26).

The difference being that EP 1 403 403 A1 does not teach "...forming a buffer layer composed of a garnet-based single crystal thin film formed at least on a crystal growing surface of said substrate to be from the room temperature to lower than 600°C when forming said buffer layer on said base substrate or anneal processing at 600 to 900°C is performed on said buffer layer. EP 1 403 403 A1 also does not teach a buffer layer being formed by the sputtering method. However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to modify and

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optimize the process parameter limitation, as taught by EP 1 403 403 A1, to encompass the similar method teachings, as taught by the instant invention. The motivation being to provide a magnetic garnet single crystal film formation substrate capable or stably forming a thick magnetic garnet single crystal film, wherein crystal defects, warps and cracks, etc are not caused by liquid phase epitaxial growth.

It is sufficient that the reference(s) clearly suggest doing what the applicant(s) have done. In re Gershon 152 USPQ 602.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might reasonably infer from the teachings. In re Opprect 12 USPQ 2d 1235, 1236 (CAFC 1989); In re Bode 193 USPQ 12; In re Lamberti 192 USPQ 278; In re Bozek 163 USPQ 545, 549 (CCPA 1969); In re Van Mater 144 USPQ 421; In re Jacoby 135 USPQ 317; In re LeGrice 133 USPQ 365; In re Preda 159 USPQ 342 (CCPA 1968).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta, can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from

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the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see

<http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).

  
FELISA HITESHEW  
PRIMARY EXAMINER  
*Art 1722*